

Amendments to the Claims

The following listing of claims shall replace all prior listings and versions of claims in this application.

Listing of Claims

1. (Currently Amended) A method of providing corrosion protection for a metal by ~~coating it~~ coating said metal with ~~an alkanethiol~~ a thiol compound, comprising the steps of

- a. dissolving or dispersing said ~~alkanethiol~~ thiol compound in a solvent and preparing a solution or dispersion,
 - b. treating said metal with said solution or dispersion,
 - c. drying or curing the treated metal, and
- thereby increasing the corrosion resistance of said metal without using chrome,
and

wherein said metal is selected from the group consisting of hot rolled and pickled steel sheet, cold-rolled steel sheet, hot-dipped metallic coated steel sheets, electroplated metallic coated steel sheets, aluminum sheets, aluminum alloy sheets, zinc sheets, zinc alloy sheets, and gold.

2. (Currently Amended) A process according to Claim 1 wherein said ~~alkanethiol~~ thiol compound has the general formula, $R(CH_2)_nSH$, where R is selected from the group consisting of methyl, carboxyl, hydroxyl, formyl, and amide, and n is in the range of 7 to 21.

3. (Currently Amended) A process according to Claim 1 wherein said ~~alkanethiol~~ thiol compound is 1-octadecanethiol.

4. (Cancelled)

5. (Previously Presented) A process according to Claim 1 wherein said metal includes coatings of one or more layers selected from the group consisting of lead, lead alloy, nickel, nickel alloy, zinc, zinc layer, tin, and tin alloy.

6. (Currently Amended) A process according to Claim 1 wherein said metal is galvanized, electro-galvanized, phosphated, resin-coated, or combinations thereof prior to ~~coating~~ treating with alkanethiol said thiol compound.

7. (Currently Amended) A process according to Claim 1 wherein said solvent is selected from the group consisting of alcohols, glycols, acetone, toluene, ethyl acetate, hexane, furan, tetrahydrofuran (THF), methylene chloride, ethers, formic acid, formamide, N,N-dimethyl formamide, acetonitrile, alkanes, turpentine, benzene, ~~ethyl or~~ butyl acetate, petroleum ester, xylene, carbon tetrachloride, mineral spirits, and water; and combinations thereof.

8. (Currently Amended) A process according to Claim 7 wherein ~~a preferred~~ said solvent is selected from the group consisting of ethanol, 1-propanol, 1-butanol, and mixtures thereof.

9. (Currently Amended) A process according to Claim 1 wherein the concentration of said ~~alkanethiol~~ thiol compound is in the range of 1 to 500 millimoles per liter.

10. (Previously Presented) A process according to Claim 1 wherein said metal substrate is coated with said solution or dispersion by using a means selected from the group consisting of immersion, spray, painting, roll coating, and flow coating.

11. (Withdrawn) A process according to Claim 1, wherein said metal is coated with said solution or dispersion by immersion.

12. (Withdrawn) A process according to Claim 11 wherein said metal is immersed in said solution or dispersion for a period ranging from 3 seconds to 15 minutes.

13. (Currently Amended) A method of providing corrosion protection for a galvanized steel by ~~coating it~~ coating said steel with an ~~alkanethiol~~ a thiol compound, comprising the steps of

- a. dissolving or dispersing said ~~alkanethiol~~ thiol compound in a solvent and preparing a solution or dispersion,
 - b. treating said galvanized steel with said solution or dispersion,
 - c. drying or curing the treated galvanized steel, and
- thereby increasing the corrosion resistance of said galvanized steel without using chrome.

14. (Original) A process according to Claim 13 wherein said galvanized steel is electro-galvanized.

15-16 (canceled)

17. (Currently Amended) A method of coating galvanized and phosphated steel with ~~an ~~alkanethiol~~ a thiol compound~~ with terminal methyl group to increase the hydrophobicity of ~~the treated~~ a coated surface of said steel, so that the steel becomes fingerprint free without coating it with a polymeric resin.